matter distributed about, would be rendered unnecessary. The above method would insure the perfect cleanliness of drains; and a properly-constructed trap to every inlet would be a preventive to any noxious and offensive exhalations emanating from them. In laying the tubes, the ground should be cut as near as possible to their form, and the lower half should be thinly bedded with mortar to fill up any little irregularities in the cutting of the ground, the tubes would then have a solid foundation.

If a line drawn from the vertical and horizontal extremities of the diameters of the tube fall within its substance, it will support any external pressure short of crushing the materials. Therefore, the proper thickness, to insure the stability of a cylindrical tube drain, is determined thus:

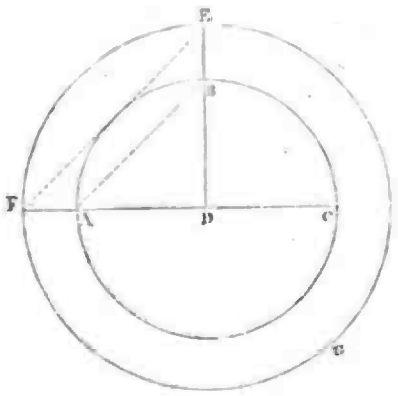

Fig. 1.

Let A B C (Fig 1) represent the interior semi-circumference of a cylindrical drain tube; join the extremities of the vertical and horizontal diameters at the vertex and side B and A, and draw the line E F parallel thereto, forming a tangent to the curve, cutting the diameters produced in E and F, either of those points will give the extent of the least thickness of the ring. With the radius D E or D F, draw the circle F E G, concentric to A B C. Thus the substance between the two circles is the proper thickness for a tube, for the lower half having the solid ground for its foundation, and being firmly bedded therein, any weight placed on E will be distributed through its substance because the line of pressure E F drawn from the two outer extremities falls within the substance of the tube.

According to the foregoing method for determining the proper substance for the tubes, the following are the thicknesses requisite for the several diameters, viz.—

				Inch.
For a pipe of 4 inches diameter the proper thickness is of				
,,	5	,,	,,	1
,,	6	,,	,,	1¼
,,	7	,,	,,	1½
,,	8	,,	,,	1¾
,,	9	,,	,,	2

Being made of entire pieces, they are better able to resist pressure; they are as durable, if not more so, and are far more efficacious in action, than common cylindrical brick drains. The cost of them would be about half the price of the present brick drains.

Wherever any alterations are being made to premises, and a desire is evinced to improve the drainage, or where drains are troublesome from often becoming stopped, cylindrical tube-drains should be immediately substituted for the present inefficient drains.

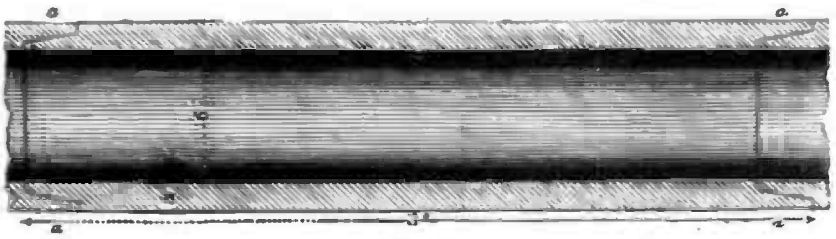

Fig. 2.

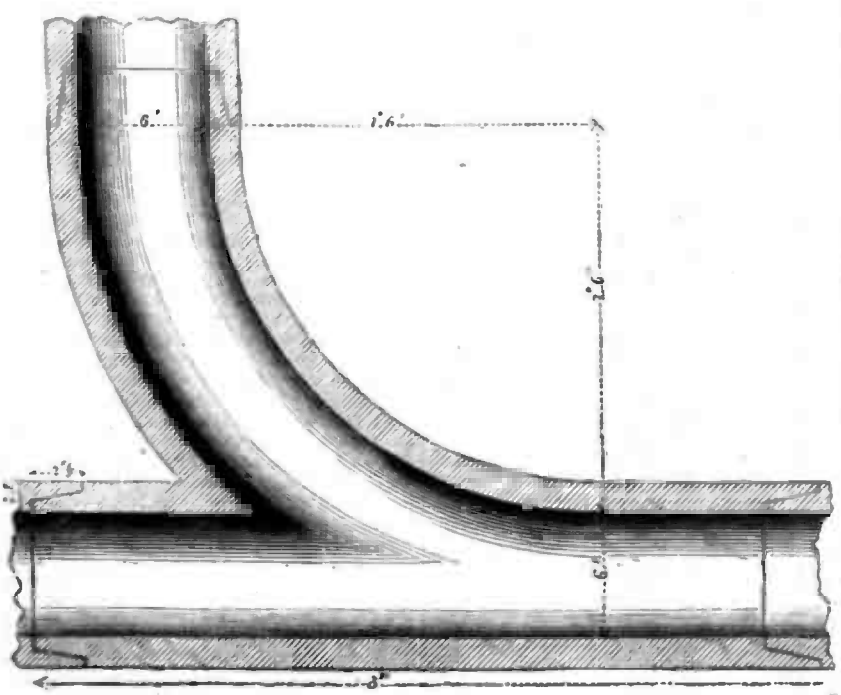

Fig. 3.

Figure 2 is a section of a pipe of 6 inches diameter; *a a a a* shewing the manner of forming the joints.

Figure 3 is a horizontal section, shewing the lateral junctions formed in one piece. These junctions should be made of different sizes, so that smaller drains may branch from the main lines.

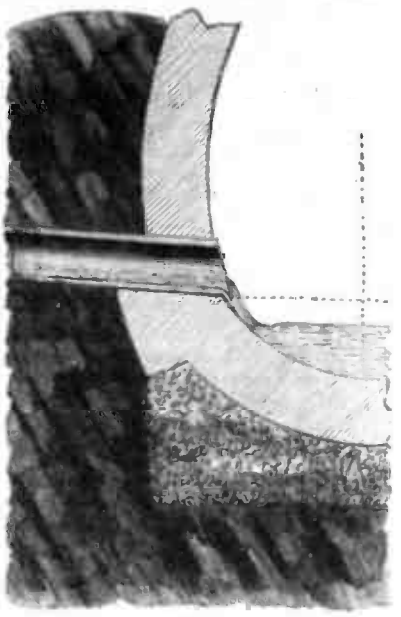

Fig. 4.

Figure 4 is a section of a portion of the sewer in use in the Westminster Commission, shewing the proposed manner for forming the connection of a tubular drain with the sewer. The tube is formed with a lip at the bottom, so that the water flowing from the drain into the sewer shall trickle down the invert, instead of being projected into the current. The junctions of drains with a sewer should be formed as near to the bottom of the sewer as is convenient, for when placed too high from the bottom, the water and matter, dropping from them into the main current, cause a retardation to take place, producing violent eddies, which prevent the heavier matter from flowing with the main current, and cause deposits to take place in the upstream, which, by increasing, eventually fill up the sewer.

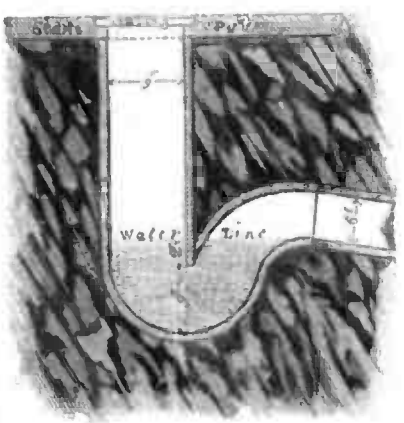

Fig. 5.

Figure 5 shews the method of forming a trap to receive surface drainage; it is made of one entire piece, with a socket on the outlet end, fastened on to a tube. The stone paving is bedded on the top, with an iron grating let into the stone, and a hole cut in the stone underneath the grating the same size as the pipe. It is evident no foul smell can escape from this trap while the bottom is kept filled with water, and in dry weather care should be taken to pour water into the trap, to make up for the water which the heat of the weather will have evaporated.

(To be continued.)

Chinese Granite.—At the meeting of the highway board, on Thursday the 21st instant, an offer was made to sell the commissioners a quantity of Chinese Granite at 6s. per square yard, being about half the price generally paid. The granite is of very superior quality, and is of lighter colour than is found in this country. The specimen sent to the commissioners has been nicely squared by the Celestials, and it appears to have formed a portion of some building.—*Liverpool Paper.*

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